

APPENDIX E: TEAM EXPERT CHOICE DECISION MAKING

The Future Force 21 team recognized early on that our decisions were critically important. We also recognized that many people would second-guess and critique our decisions. Lastly, these decisions were complicated and required taking into account several various criteria in order to make a judgment. For all these reasons, we opted to use decision support software to make our work repeatable, defensible and more able to be presented and modified if necessary. The specific software we chose was Team Expert Choice (Team EC) because it met our needs as stated above, was able to accept many people voting on each decision, and because one of the team members had experience with the software while recently attending post-graduate training. Team EC is based on the Analytical Hierarchy Process (AHP), which compares various alternatives to each other in a pair wise method and does so across multiple criteria.

Most decisions are based on many other smaller decisions for various portions or criteria. For example, buying a car might include the primary uses of the vehicle (hauling lumber therefore a truck), how many passengers (perhaps a minivan), driving conditions (do you need 4-wheel drive), safety, reliability, price, personal preference, accessories and comfort (leather seats, sunroof, stereo)... Often times, people decide by aggregating these criteria and choosing the alternative that makes the best sense in this aggregate view. AHP provides decisions that are more repeatable and defensible by keeping decisions separated and recording the decisions by the various criteria. The aggregate view is displayed only after all pair wise comparisons are completed. The technical theory and workings of AHP is matrix algebra. AHP has been used in decision support for many years, but has always been very labor intensive. Team Expert Choice software simplifies the laborious math involved with AHP, enabling quick modifications and “what-if” scenarios. The software’s interface enables users to concentrate on the decision, not the math.

AHP and Team EC models appear as hierarchical charts (see Figure 2 on the following page). Each level of the model has an aggregate score of 1.00 (100%). The highest level is the goal, in this case, narrowing the options for Workforce Structure for the active duty enlisted workforce.

The second level of the model is the criteria we used to decide the appropriate Workforce Structure. The decision criteria in this particular model are equally weighted at 0.200 (20%) each. The Future Force 21 Team felt that all five criteria were equally important in deciding the Workforce Structure. You will see in later discussions that weighting these criteria differently would not have changed the decisions we reached, unless one or more criteria were weighted at virtually zero. A brief explanation of the five criteria follows:

- Multi-mission – The extent that the choice of Workforce Structure enhances the multi mission nature of the Coast Guard. The multi mission criterion was taken from the 1999 Roles and Missions Study.
- Professional Competency – The extent that the choice of Workforce Structure enhances the professional competency of individual members and therefore, the Coast Guard as a whole. This criterion comes from the realization that professional competency is a prerequisite to a successful mission.
- Return On Investment (ROI) – The extent that the choice of Workforce Structure capitalizes on the investment made in the member. ROI in this instance refers to training (formal and OJT) and skills that the Coast Guard either taught the member or purposefully hired the member for certain organizational needs. Accounting for ROI is a realization of the price (funding and efficiency) paid for skills and performance.

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- **Agility** – The extent that the choice of Workforce Structure enhances the organizational agility. Agility is a core competency that comes directly from the Coast Guard’s multi-mission mandate and from the Service’s motto Semper Paratus (Always Ready).
- **Opportunity** – The extent that the choice of Workforce Structure enhances the member’s motivations (opportunities for professional and personal growth, travel, geographic stability). The Future Force 21 Team added this criterion during deliberations because we recognized that all other criteria were for the Service’s benefit.

The third (and final level in this model) are the various options for the Workforce Structure. The options vary in weight according to which criterion you view. For example, the Team determined that all Workforce Structure options equally supported the multi-mission criterion of the Service, so the weight is the same regardless of the option. However, professional competency was significantly enhanced in Workforce Structures that tended towards matching a member’s talent, skills and training with the job. A brief explanation of the six options follows:

- Generalist – Members are more-or-less “Jacks-of-all-Trades” and move through different specialties and unit types throughout their careers. Although officer specialties currently exist, the Service manages the officer corps as generalists. For example, officers currently compete against all others for promotion, i.e., ship drivers vs. aviators vs. engineers vs. marine safety specialists.
- Line & Logistics – Members are either in the operational or support community for the majority, if not all, of their careers. This is similar to DoD’s Line and Logistics corps.
- Mission – Members are missions specialists for the majority, if not all, of their careers and compete against only others members in the same mission area for assignments and advancements/promotions.
- Rate/Specialty – Members belong to a rating, specialty, or series for the majority, if not all, of their careers. This is how the enlisted workforce is currently managed, with members competing for assignments and advancement against only members in the same rating.
- Unit – Members are platform specialists for the majority, if not all, of their careers and compete against only other members of the same platform specialty for assignments and advancements/promotions.
- Individual Jobs – Members compete for individual jobs based on skills requirements. This is the current civilian personnel hiring system.

Narrowing Workforce structure options

Abbreviation	Definition
AGILITY	enhances flexibility to move people between jobs
GENERAL	Everyone is a jack-of-all-trades
IND_JOBS	people are managed at the specific job level
LINE_LOG	people are managed by operations -vs- support
MISSION	people are managed by mission specialty
MULTIMIS	enhances multimission character
OPPORTUN	increases alternative career opportunities (breadth & depth)
PROF_COM	enhances maintenance increasingly specialized profess competence
RATE/SPE	people are managed by rating, specialty, job series
ROI	maximizes return on investment of trng and experience
SPE_UNIT	people managed at the specialty level by units
UNIT	people managed at the unit level
WIIFM	What's in it for me (employee)

Figure 1: Glossary for Workforce Structure Model

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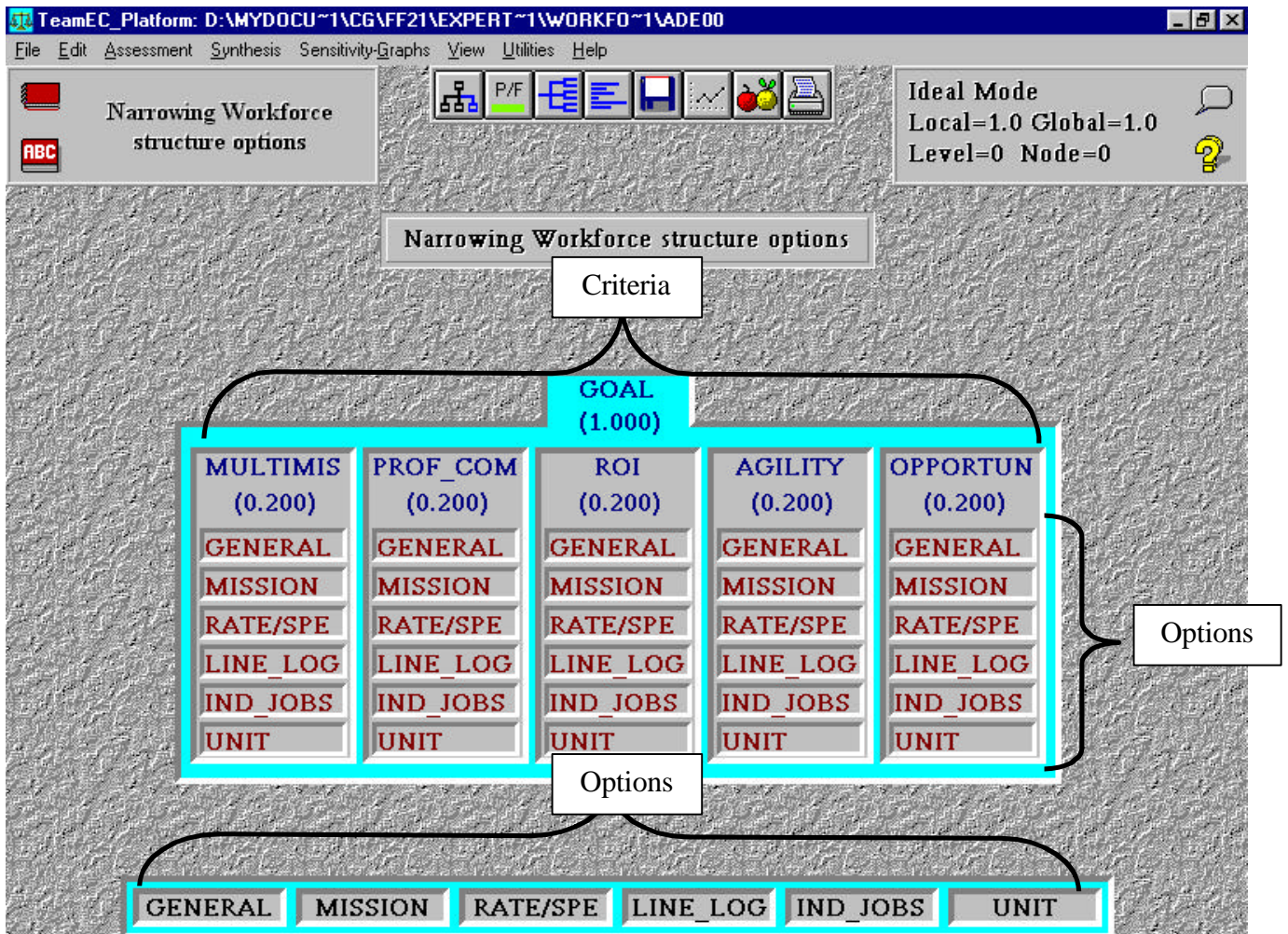


Figure 2: Team Expert Choice Model

What follows are charts showing the final decisions of the various axis (major functions) of the whole Human Resource System based on scoring by the Future Force 21 Team members. In these Sensitivity Graphs, the criteria appear at the bottom and the options appear as lines and to the right of the graph. The dependent (Y) axis is the aggregate weight assigned to the criteria and options by all voting members.

Active Duty Enlisted Workforce Structure

In the figure to the right, don't look at overall average weight (far right) [a] because some of the low variances are unacceptable despite a higher overall average. **The General and Individual Jobs options are opposite workforce structure options and are too low on the criteria Professional Competency and Return On Investment (ROI) [b] or Agility and Opportunity [c] and therefore, their positive benefits [d] and [e] aren't worth the sacrifices.** **The same logic applies to the Line/Logistics option.** It is too low for Professional Competency and Return On Investment (ROI) criteria [b]. **Among the remaining workforce structures, Mission balances all the criteria the best. Rate/Specialty is a close second, followed by Unit.**

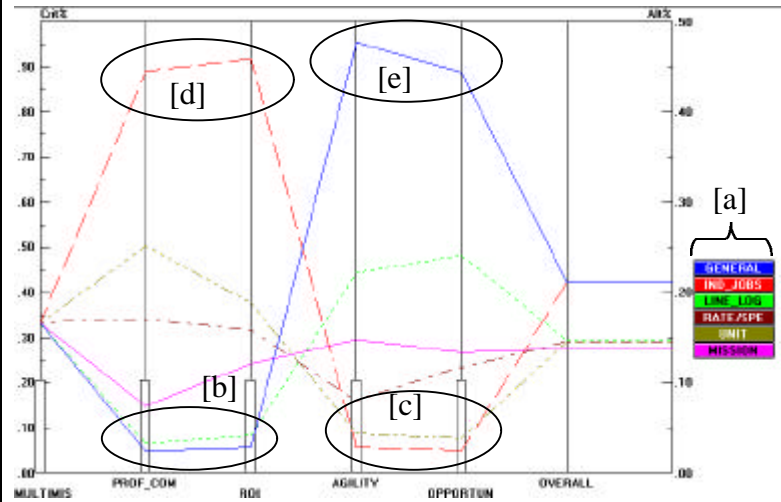


Figure 3: Sensitivity Graph of the Active Duty Enlisted Workforce Structure

Reserve Enlisted Workforce Structure

Once again, don't look at overall average weight (far right) because some of the low variances are unacceptable despite a higher overall average. **The Mission, Generalist and Line/Logistics options were lackluster and weighted too low on the criteria Professional Competency, Return On Investment (ROI) [a] and What's In It For Me (WIIFM) (member's perspective) [b]. Any of the other three options of Specialty-By-Unit, Individual Jobs, and Rating/Specialty are acceptable.** Although they are low in Agility [c], the Reserve workforce is a volunteer force tied to a geographic area and is therefore less agile than other workforces. The most balanced of these three is Rating/Specialty, but is only somewhat higher than the other two in Agility. Considering the large positive differences in Professional Competency and Return On Investment in Specialty-By-Unit and Individual Jobs options [d], they should be strongly in first choice.

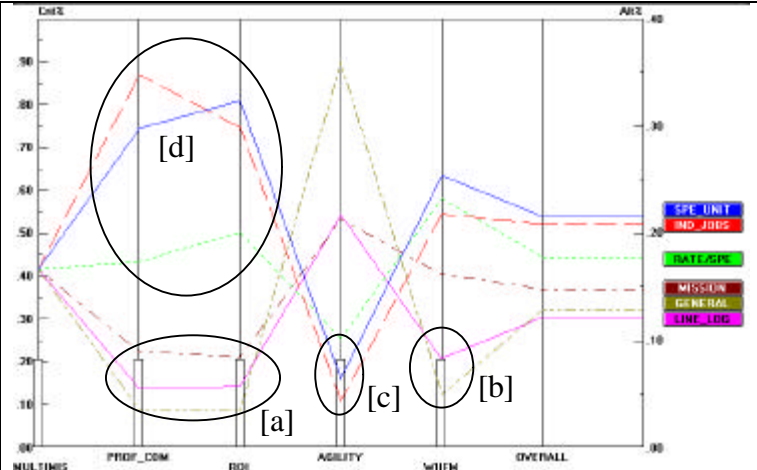


Figure 4: Sensitivity Graph of the Reserve Enlisted Workforce Structure

Active Duty Officer Workforce Structure

In the figure to the right, don't look at overall average weight (far right) [a] because some of the low variances are unacceptable despite a higher overall average. The General and Individual Jobs options are opposite workforce structure options. **The General and Line/Logistics options are too low on the criteria Professional Competency, Return On Investment (ROI), and What's In It For Me (WIIFM) [b]. For the Agility criteria, the options Individual Jobs and Specialty/Unit are too low [c]. The remaining, acceptable workforce structures are Mission and Rate/Specialty.**

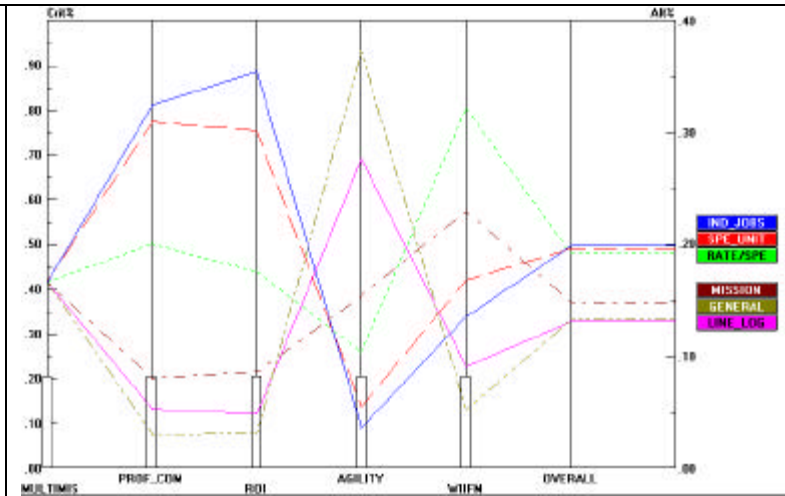


Figure 5: Sensitivity Graph of the Active Duty Officer Workforce Structure

Reserve Officer Workforce Structure

The General and Individual Jobs options are opposite workforce structure options. **The General and Line/Logistics options are too low on the criteria Professional Competency, Return On Investment (ROI), and What's In It For Me (WIIFM) [b]. For the Agility criteria, the options Individual Jobs and Specialty/Unit are too low [c]. The remaining, acceptable workforce structures are Mission and Rate/Specialty.**

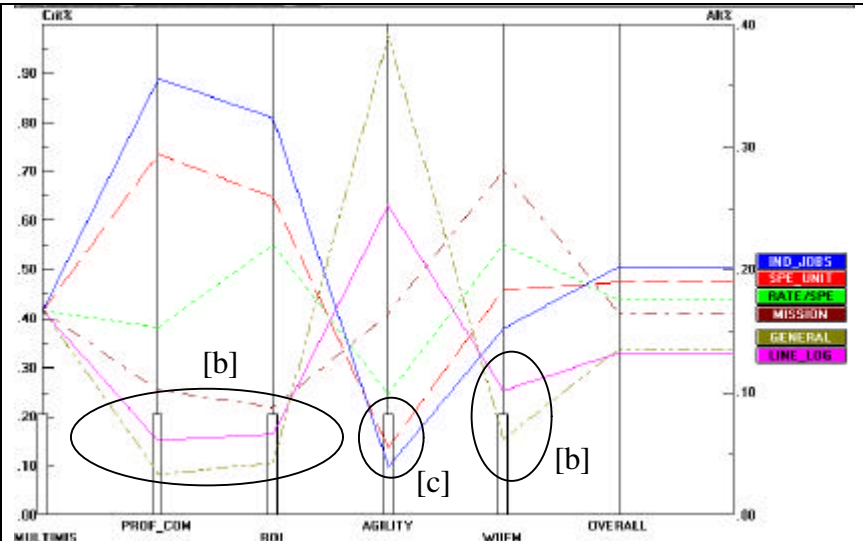


Figure 6: Sensitivity Graph of the Reserve Officer Workforce Structure

Civilian Workforce Structure

The General, Line/Logistics, and Mission options are too low on the criteria Professional Competency, Return On Investment (ROI), and What's In It For Me (WIIFM) [b]. For the Agility criteria, the option Individual Jobs is too low [c]. The remaining, acceptable workforce structures are Rate/Specialty and Specialty by Unit.

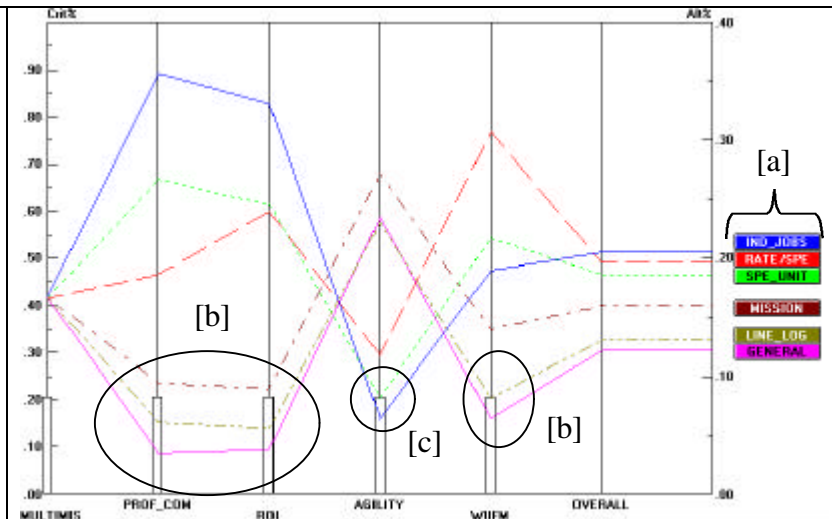


Figure 7: Sensitivity Graph of the Civilian Workforce Structure

Auxiliary Workforce Structure

The General, Line/Logistics, and Mission options are too low on the criteria Professional Competency, Return On Investment (ROI), and What's In It For Me (WIIFM) [b]. Despite a low rank in the Agility criteria, the option Individual Jobs remains an acceptable option because the volunteer nature of the Auxiliary naturally negatively impacts agility. [c]. The remaining workforce structures are also acceptable Rate/Specialty and Specialty by Unit.

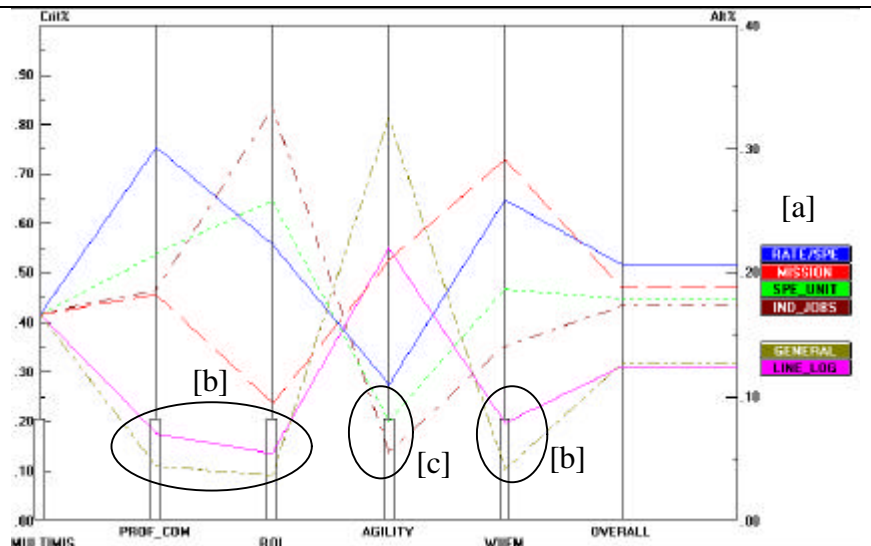


Figure 8: Sensitivity Graph of the Auxiliary Workforce Structure

Contractor
Workforce Structure

Not Applicable

Narrow down choices for Career Entry and Progression

Abbreviation	Definition
ACQSKILL	Hiring skills -vs- developing skills
AGILITY	Enhance flexibility among workforce components
APJOURMST	Apprent, Journey, Mstr, grow own, reduced unskilled labor, UOO
CAREEROP	Enhance career options for personnel
IN&OUT	Contractor model, like private enterprise
JOURNMST	Journeyman, Master, no trng billet, lateral entry, not all up-out
MIL_CHAR	Enhance CG's military service character
MINPRODV	Hiring skills -vs- developing skills
MOD_AJM	Modified Apprent, Journ, Mstr, lateral entry, not all up-or-out
PYR_UOO	Pyramid structure, grow-your-own, up-or-out
RE-USE	Maximize re-use of existing skills
ROI	Maximize return on investment of training and experience
WIIFM	What's in it for me?

Figure 9: Glossary for Career Entry and Progression Model

Active Duty Enlisted Career Entry & Progression

The low variances in the criteria [a] are unacceptable despite higher overall weights in other criteria. **All the options except Modified Apprentice, Journeyman, and Master (MOD_AJM) had some criteria weighted too low to be considered acceptable.**

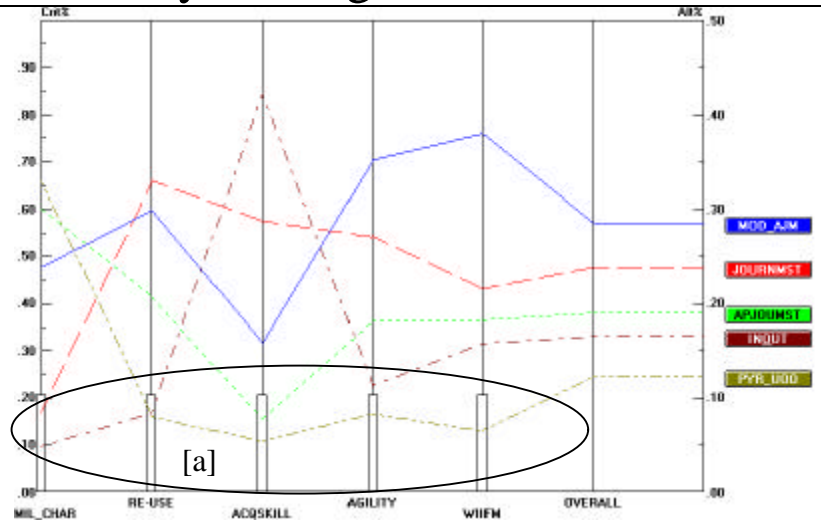


Figure 10: Sensitivity Graph of the Active Duty Enlisted Career Entry and Progression

Reserve Enlisted Career Entry & Progression

The low variances in the criteria [a] are unacceptable despite higher overall weights in other criteria. **All the options except Modified Apprentice, Journeyman, and Master (MOD_AJM) had some criteria weighted too low to be considered acceptable.**

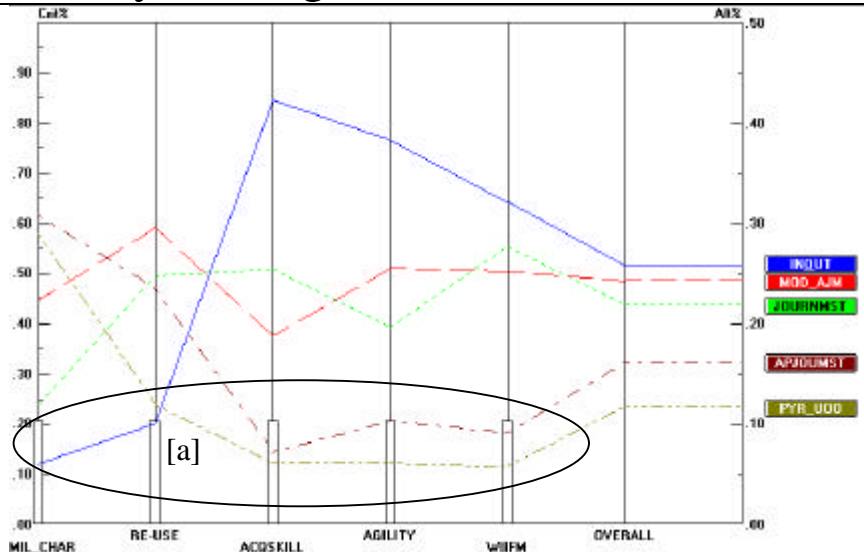


Figure 11: Sensitivity Graph of the Reserve Enlisted Career Entry and Progression

Active Duty Officer Career Entry and Progression

The low variances in the criteria [a] are unacceptable despite higher overall weights in other criteria. **All the options except Modified Apprentice, Journeyman, and Master (MOD_AJM) had some criteria weighted too low to be considered acceptable.**

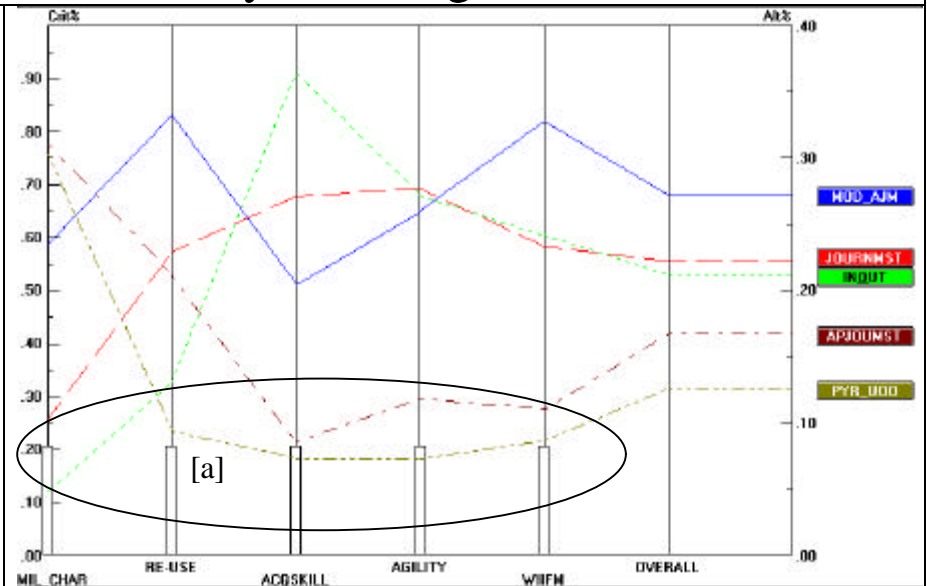


Figure 12: Sensitivity Graph of the Active Duty Officer Career Entry and Progression

Reserve Officer Career Entry and Progression

The low variances in the criteria circled [a] are unacceptable despite higher overall weights in other criteria. **All the options except Modified Apprentice, Journeyman, and Master (MOD_AJM) had some criteria weighted too low to be considered acceptable.**

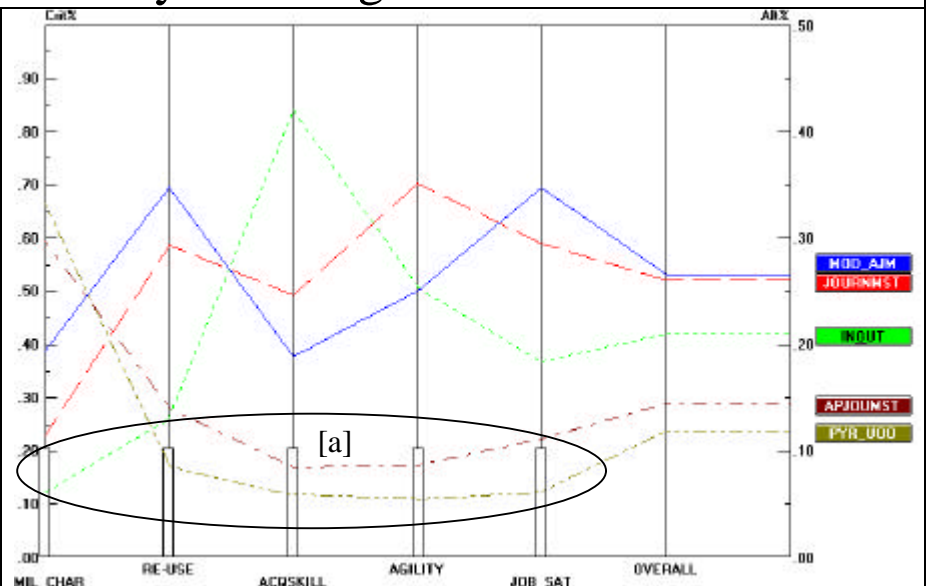


Figure 13: Sensitivity Graph of the Reserve Officer Career Entry and Progression

Civilian Career Entry and Progression

All options except Modified Apprentice, Journeyman, Master (Mod-AJM) and Journeyman/Master (JourMstr) had low weights in one or more criteria [a].

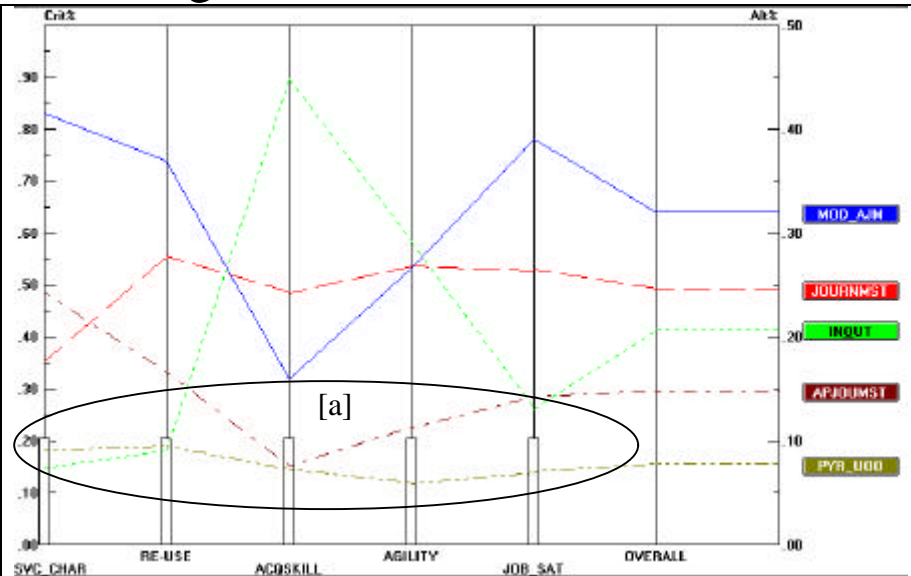


Figure 14: Sensitivity Graph of the Civilian Career Entry and Progression

Auxiliary Career Entry and Progression

The options Apprentice, Journeyman, Master and Pyramid Up-or-Out had low weights in all criteria [a] and are unacceptable. All other options are acceptable.

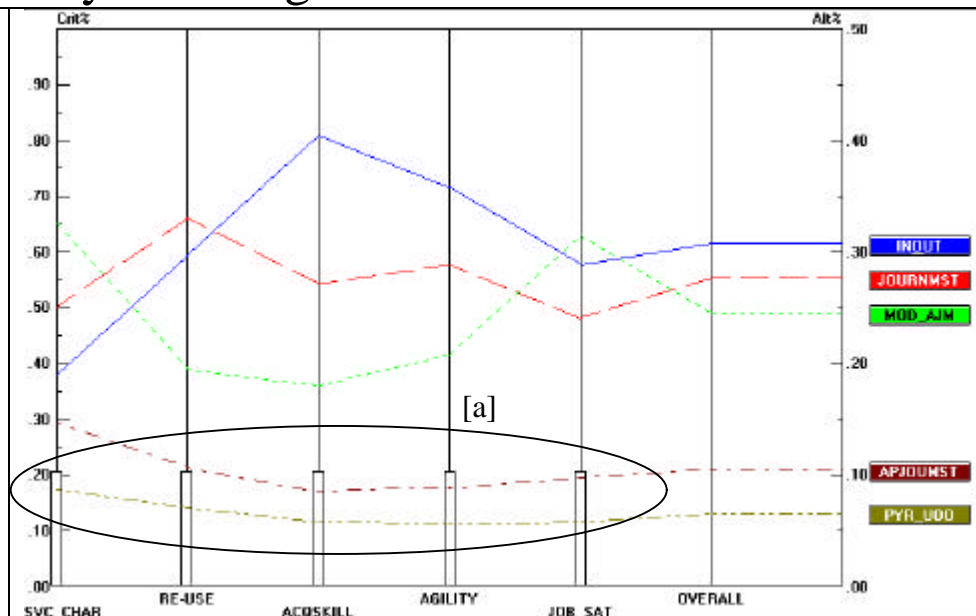


Figure 15: Sensitivity Graph of the Auxiliary Career Entry and Progression

Contractor Career Entry and Progression

Not Applicable

Narrow down the HR System Mgmt axis options

Abbreviation	Definition
ACQU_RET	Enhance ability to acquire and retain members
AQU_RET	Enhance ability to acquire and retain members
CENTRAL	Managing in a centralized method
DECENTRA	Managing by decentralized method
EQUITY	Enhance perceived equitably by members
ORG_AGIL	Enhance organizational agility
PROF_COM	Enhance professional competence
REGIONAL	Managing by region
SVC_CHAR	Enhance service character as described in other models

Figure 16: Glossary for Human Resource System Management Model

Active Duty Enlisted Human Resource System Assignment Management

The low weights in several criteria for the **Decentralized option [a]** are unacceptable despite the higher weight in the Professional Competency criteria [b]. **The Centralized and Regional options are acceptable in all criteria** and Centralized appears easily the best decision except for Professional Competency (Prof_Com) [c].

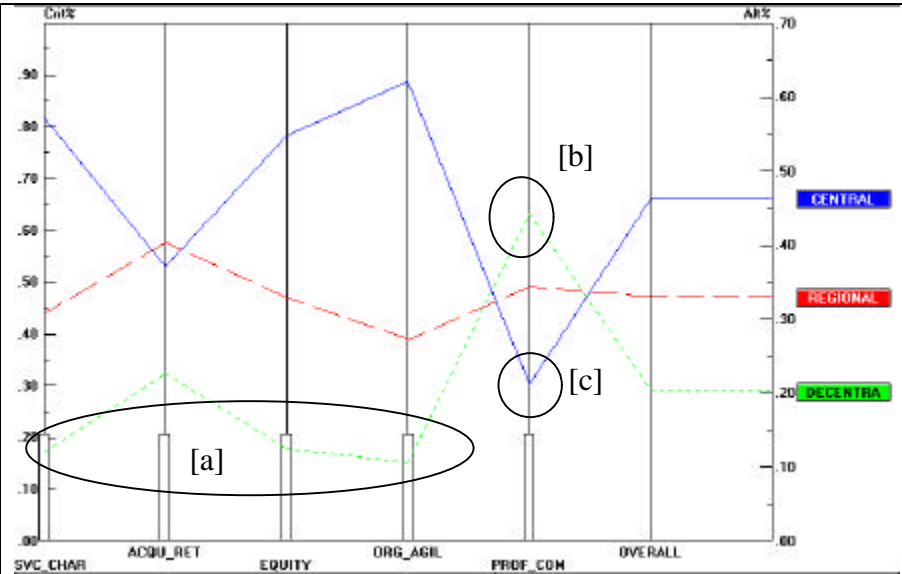


Figure 17: Sensitivity Graph of the Active Duty Enlisted Assignment Management

Active Duty Enlisted Human Resource System Compensation Management

The low weights in several criteria for the **Decentralized option [a]** are unacceptable despite the higher weights in other criteria [b]. **The Centralized and Regional options are considered acceptable in all criteria.** Which of these two options is best will depend on balance (Regional) or Service Character and Equity.

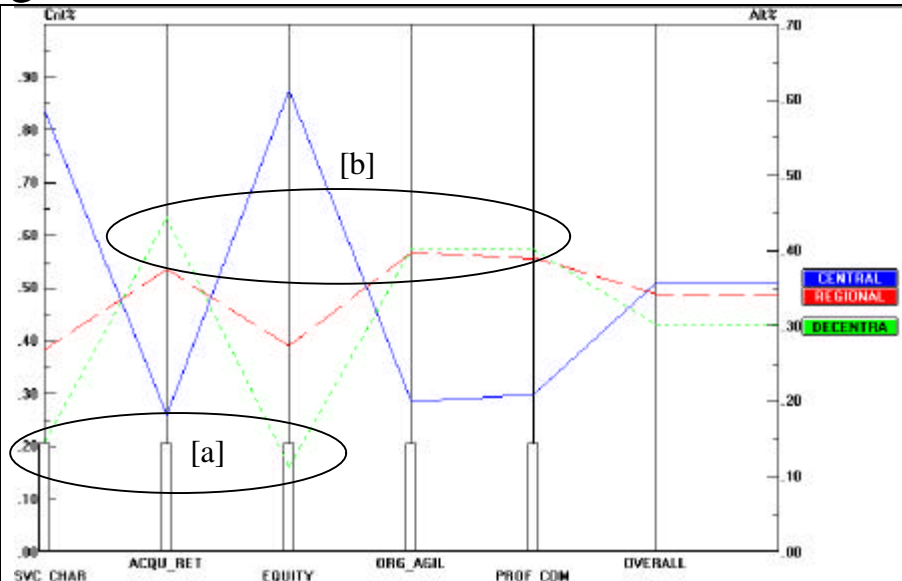


Figure 18: Sensitivity Graph of the Active Duty Enlisted Compensation Management

Reserve Enlisted Human Resource System Assignment Management

The comparatively low weights in all criteria for the **Centralized** option [a] are unacceptable. The **Decentralized** and **Regional** options are acceptable in all criteria.

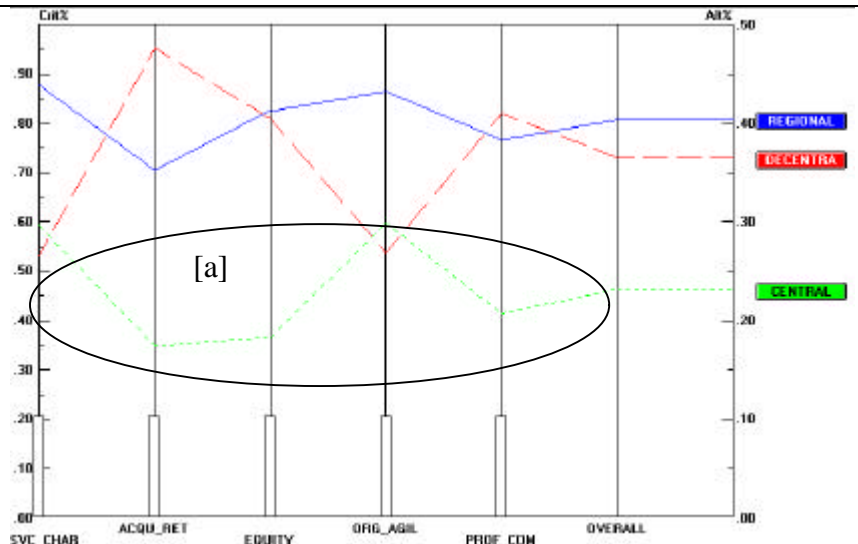


Figure 19: Sensitivity Graph of the Reserve Enlisted Assignment Management

Reserve Enlisted Human Resource System Compensation Management

We decided that **all three options** were acceptable with Regional the most balanced.

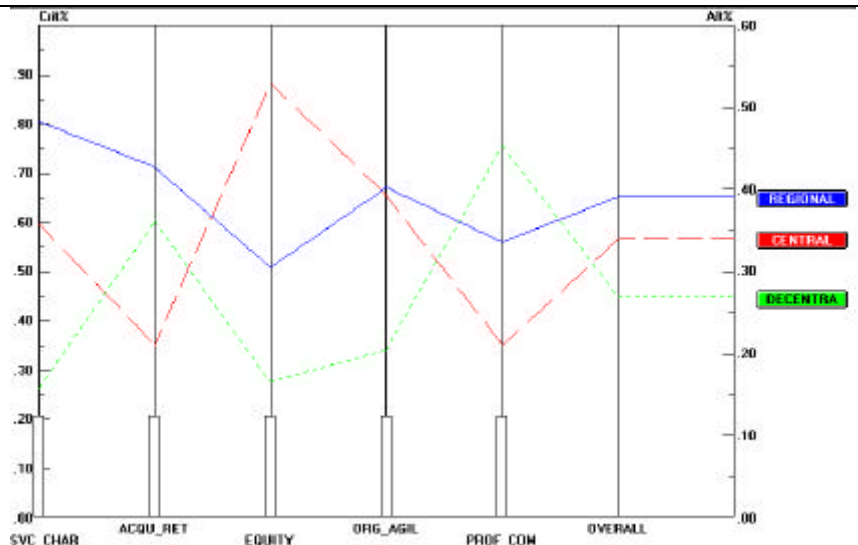


Figure 20: Sensitivity Graph of the Reserve Enlisted Compensation Management

Active Duty Officer Human Resource System Assignment Management

The low weights in all criteria for the **Decentralized option [a]** are unacceptable. The Centralized and Regional options are acceptable.

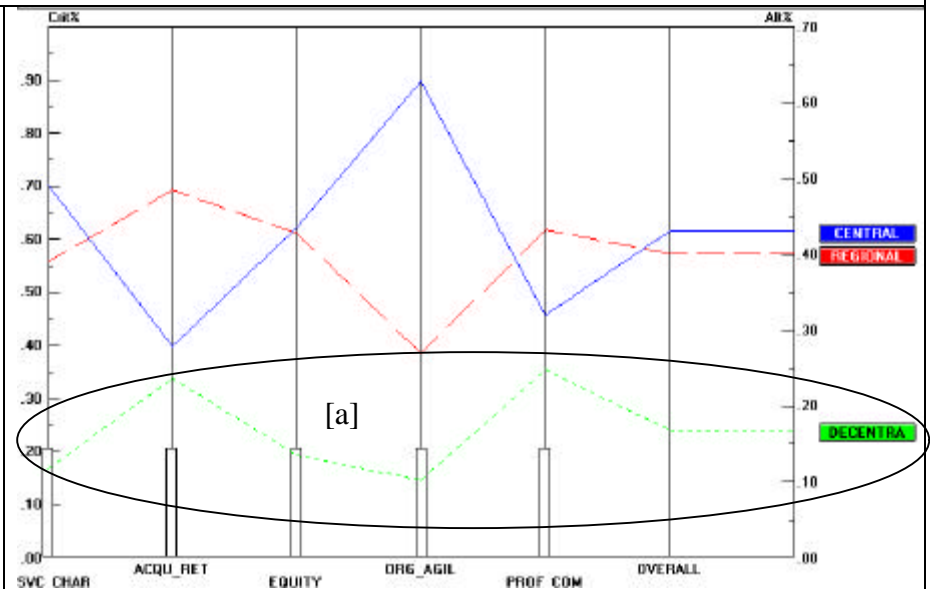


Figure 21: Sensitivity Graph of the Active Duty Officer Assignment Management

Active Duty Officer Human Resource System Compensation Management

The low weights in several criteria for the **Decentralized option [a], and its overall weighting are unacceptable.** Although the Centralized option has some lower weighting, it is offset by significantly higher weights in other criteria. Therefore, **Centralized is acceptable. The Regional option is acceptable in all criteria.**

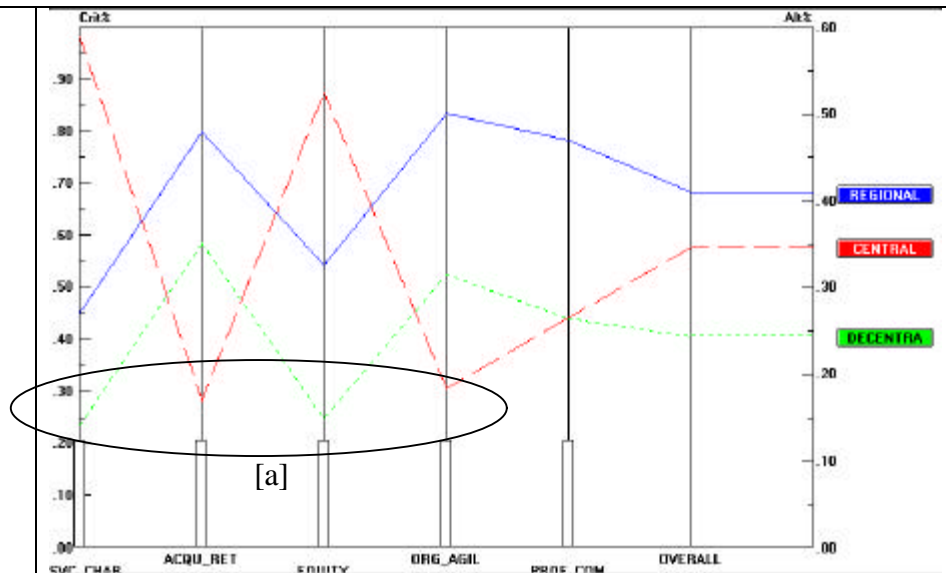


Figure 22: Sensitivity Graph of the Active Duty Officer Compensation Management

Reserve Officer Human Resource System Assignment Management

Same as Reserve Enlisted

The relative low weights in all criteria for the **Centralized option [a]** are unacceptable. The **Decentralized and Regional options** are acceptable in all criteria.

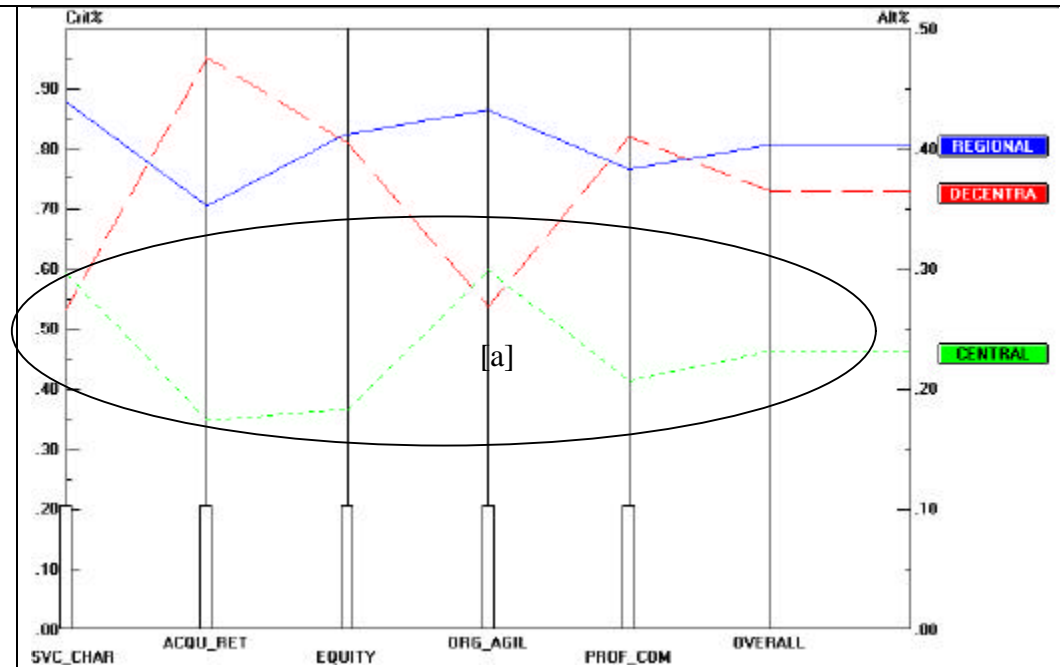


Figure 23: Sensitivity Graph of the Reserve Officer Assignment Management

Reserve Officer Human Resource System Compensation Management

Same as Reserve Enlisted

We decided that **all three options were acceptable** with Regional being the most balanced and best choice.

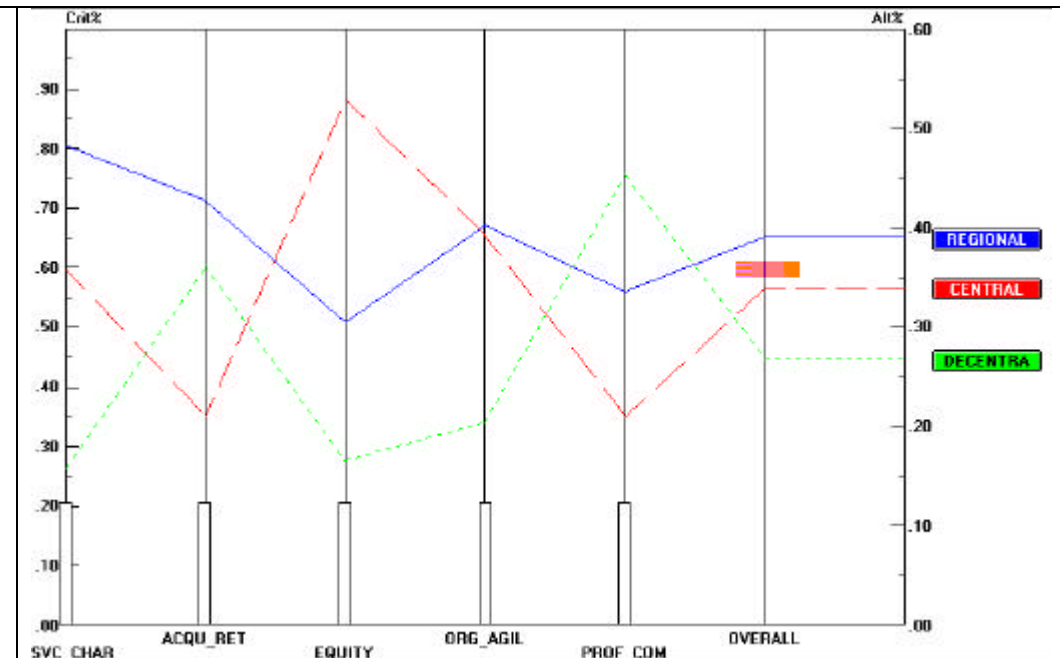


Figure 24: Sensitivity Graph of the Reserve Officer Compensation Management

Management

Civilian Human Resource System Assignment Management

All options are acceptable.

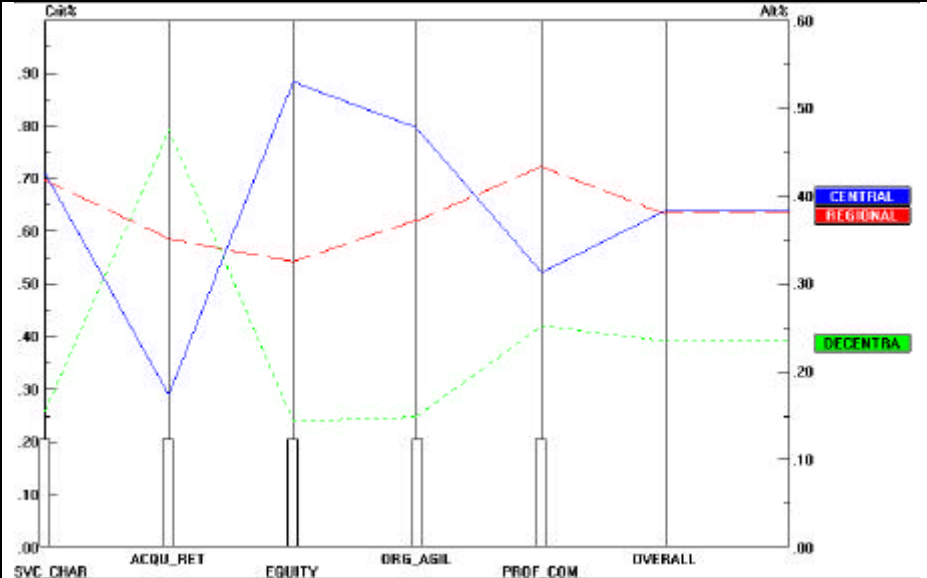


Figure 25: Sensitivity Graph of the Civilian Assignment Management

Civilian Human Resource System Compensation Management

All options are acceptable.

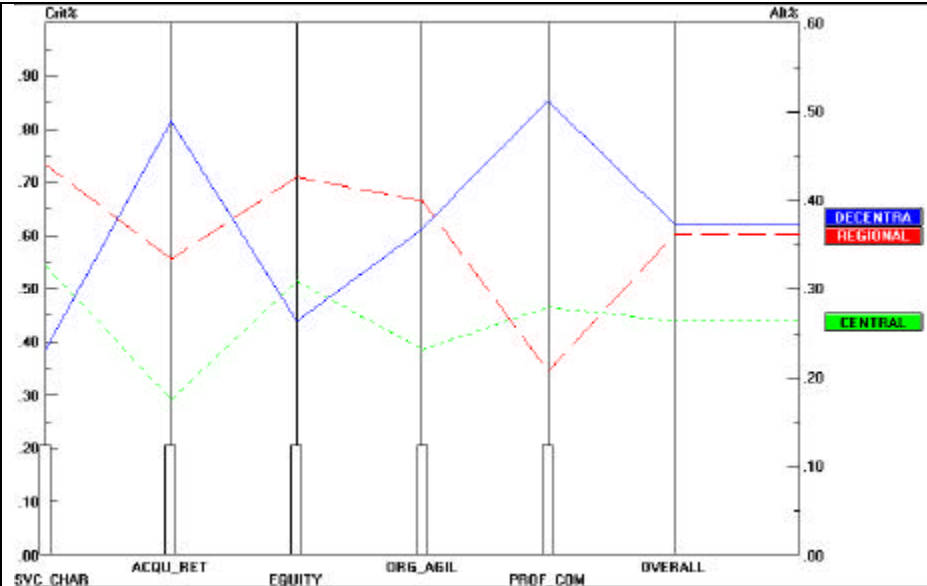


Figure 26: Sensitivity Graph of the Civilian Compensation Management

Auxiliary Human Resource System Assignment Management

Centralized management for Auxiliary assignment is unacceptable. Regional and Decentralized are acceptable.

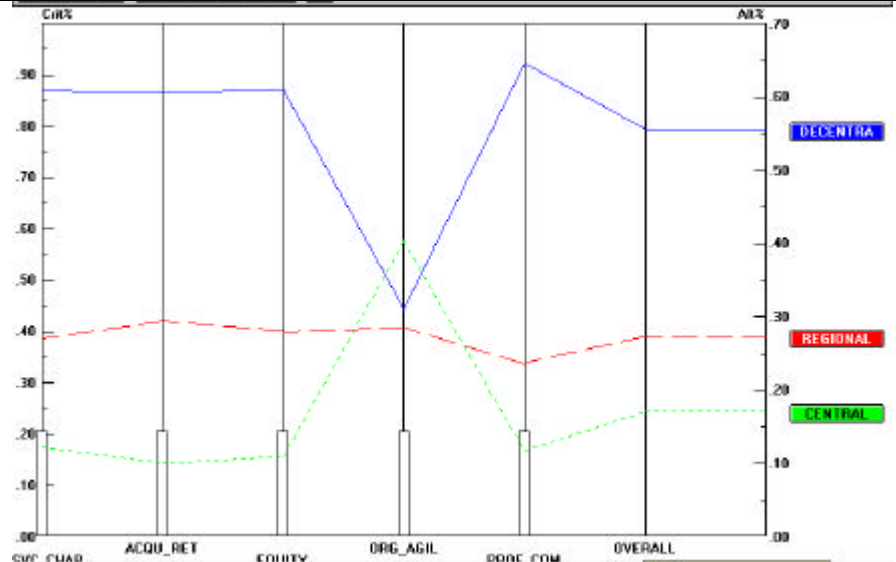


Figure 27: Sensitivity Graph of the Auxiliary Assignment Management

Auxiliary Human Resource System Compensation Management

Not applicable

Contractor Human Resource System Assignment Management

Not Applicable

Contractor Human Resource System Compensation Management

Not Applicable